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COUNTRY AND INTERCOUNTRY PROGRAMMES AND PROJECTS

PROJECT RECOMMENDATION OF THE ADMINISTRATOR

Assistance for a global project

Research and Development in Integrated Resource Recovery (GLO/80/004)

Estimated UNDP contribution:	$1,866,000
Duration:	Three years
Executing Agency:	World Bank

E M B A R G O

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* This document will be derestricted upon approval of the project. See document DP/526, which will be issued in June 1981.

I. Background

1. Management and disposal of urban waste is assuming increasing importance in many developing countries, as a consequence of the rapid urbanization process now prevailing in most parts of the world. Increasing costs of refuse collection and disposal now amount to as high as 20 per cent of municipal budgets of some developing country cities, and are likely to increase steadily. Unless properly managed, urban waste can pose serious threats to the environment and to individual health. When properly managed, urban wastes represent significant potential sources of reusable materials and energy, and resource recovery is receiving increasing attention within waste management programmes, in developed and developing countries alike. This trend is likely to continue as the demand for, and cost of, raw materials of all kinds continues to grow. As a result of these factors, there is a growing recognition that improved methods of waste management in developing countries are an increasingly urgent need. A recent example of this recognition is the Workshop on Solid Waste Disposal and Utilization in Developing Countries, organized in Amsterdam in October 1980 with the support of the Government of the Netherlands, and which was attended by representatives from nine developing countries. The Workshop unanimously adopted a resolution calling for the improvement of scientific knowledge and increased exchange of information and experience in this sector.

2. The problem of devising better waste management systems that will meet acceptable economic, environmental and health standards is complicated by the fact that present systems are a significant source of employment for urban populations. It is estimated that in many cities of developing countries 1 to 2 per cent of the population is supported directly or indirectly by refuse from the upper 10 to 20 per cent of the population. In large cities with a population of 3 to 10 million persons this represents a significant number of jobs. Estimated household incomes from scavengers range from minimum poverty levels in some countries to approximately three times the average urban income in one large city. Present systems frequently provide the only entering level of employment for new urban dwellers emigrating from rural areas. In these circumstances, it is essential that improved waste-management systems build upon present systems to the extent possible, so as to minimize the disruption of present employment patterns. Appropriate occupational health and safety measures need to be incorporated to safeguard and improve the scavengers' working conditions, which are generally very poor and detrimental to health.

3. In order to design better waste management and recovery systems and optimize investments in this sector, additional research is needed. It is necessary, first of all, to obtain more complete data on the financial, employment, environmental and social aspects of present entrepreneurial and municipal systems. Social aspects need particular attention, since present systems of waste collection, recycling and disposal are frequently a complex function of culture, education, religion, social status and related factors. In order to design appropriate systems it is necessary to understand which behavioural elements can be changed during the lifetime of a project, and which cannot. Research and experimentation on multipurpose systems is needed; i.e., systems that combine waste collection,

sorting, recovery and recycling for alternative uses into an efficiently integrated operation. Present difficulties in identifying and quantifying the many variables and interactions involved in such systems have generally led in the past to single purpose approaches to resource recovery, whereas multipurpose systems can offer many advantages. Finally, expanded research is needed into the possibilities for converting waste materials into usable sources of energy. Possibilities here include, among others, direct recovery of energy through combustion or methane production; conservation of equivalent amounts of energy through the recycling of metals, glass, paper and plastics; and composting of city waste to produce fertilizer for horticulture and agriculture in adjacent areas.

II. The project

4. The immediate objective of the project is to carry out research on the above questions for the purpose of designing and installing pilot integrated resource recovery systems in six developing country cities initially. The longer-term objective is to achieve significant economic, health, environmental, employment and energy benefits for developing countries through the development and demonstration of replicable integrated resource recovery projects that meet acceptable economic, environmental and social standards. The six cities to be included in the project have not yet been selected. Preparatory work has been initiated for the purpose of defining criteria for city selection and exploring with Governments their interest and role in the project. The project document, including a detailed work plan, will be formulated in consultation with interested Governments and Agencies during the preparatory period. To finance the necessary preparatory work, the Administrator has approved an amount of $100,000 under the authority delegated to him by the Governing Council for the purpose of preparing global research projects.

5. The research to be carried out is expected to include such topics as the following:

(a) A review of historic practices of waste collection, disposal and recovery in industrial countries;

(b) Case studies in six cities of developing countries aimed at documenting the technological, institutional, economic and social aspects of current systems;

(c) Institutional and social determinants of the quantities and composition of household, commercial, industrial and community refuse at various levels of development;

(d) Cultural, social and institutional constraints and thresholds which determine the economic status of employers, workers, and entrepreneurs in waste collection, recycling and disposal;

(e) Employment and income levels and potentials for single-purpose and integrated systems of resource recovery;

(f) Applicability to specific locations of alternative labour and capital-intensive schemes for resource conservation and recovery, and for related waste disposal;

(g) Recoverable energy values for mixed or sorted refuse and equivalent energy values for various components of that refuse, such as metals, glass and plastics;

(h) Local marketing channels and values of recoverable materials;

(i) Cost savings to municipalities which may be realized by recycling waste rather than disposing of them.

The scope of the research is subject to modification on the basis of further investigations to be carried out during the preparatory period.

6. On the basis of the research to be conducted, policy option and planning guidelines for single purpose and integrated systems will be formulated, and six demonstration-scale integrated resource recovery projects will be designed and organized in the cities selected for inclusion in the project. Each system will be adapted to the specific economic, social and environmental conditions prevailing in the city in question. Methodologies and protocols for monitoring these projects and other existing and proposed resources recovery and waste disposal programmes will also be developed. Cities will be selected and demonstration projects designed in a way that will yield experience in a variety of climates, cultural situations and economic conditions, based on a range of waste sources and reclaimed products.

7. Interim and final research results will be disseminated widely. In the fin year of the project, workshops will be organized to familiarize concerned officials of developing countries with the conclusions drawn from the research work and demonstration projects. Final results will be incorporated in a manual of practice, synthesizing the project's findings and recommendations regarding alternative technologies of waste management and resource recovery, occupational health and safety, market development for reclaimed products and institutional a investment requirements of alternative systems.

8. The expenditure components of the proposed UNDP contribution are at this ti expected to be approximately as follows:

	$US
Personnel	1,221,000
Subcontract	120,000
Equipment	300,000
Training	120,000
Miscellaneous	105,000
Total	1,866,000

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This expenditure pattern is subject to revision and will be finalized on the basis of the research design and work plan to be formulated during the preparatory period. Proposed expenditures during the year 1981, estimated at no more than $200,000, including the preparatory assistance already approved, will be contained within the global IPF for the current cycle, and the balance within the global IPF established for the third cycle.

III. Recommendation

9. The Administrator recommends that the Governing Council:

(a) Approve the project; and

(b) Authorize the Administrator to make appropriate arrangements with the World Bank for its implementation.